REMARKS

Currently claims 1-3, 5-12, and 14-16 are pending in the application. Claims 1-3, 5-12, and 14-16 have been rejected.

Claims 1, 2, 3, and 10 have been amended.

Claims 1-3, 5-12 and 14-16 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention.

By this amendment, the phrase "that protects all but the immediately vaporizing material from the temperature in the second region" has been added to independent claims 1 and 10 to make them clear and definite. This term makes it clear that at any instant in time that all of the material is protected from vaporization except for that material which is immediately vaporized. One skilled in the art would clearly understand from the specification that this is a requirement of the present invention.

Claims 1-3 and 5-7 were rejected under 35 U.S.C. § 102(b) as being anticipated by Tsukasa (JP 05-117864).

Claims 1 and 10 are the only independent claims in this case. Claim 1 is representative and employs an evaporation apparatus wherein the solid organic material in a first region is actively cooled to be below the vaporization temperature. A second region of the vaporization apparatus is heated above the vaporization temperature of the solid organic material. The arrangement is such that a steep thermal gradient is established across the thickness of the organic material between the first and second regions that protects all but the immediately vaporizing material from the temperature in the second region. The solid organic material from the first region is then metered at a controlled rate so that a thin cross-section is heated to vaporize this material to form a film on the substrate surface.

There are substantial differences between the Tsukasa (JP 05-117864) reference and both claims 1 and 10. The Examiner points out in reference to claim 1, his belief that '864 discloses proving a quantity of solid organic material into a vaporization apparatus, actively cooling the solid organic material in a first region in the vaporization apparatus, heating a second region of the vaporization apparatus above the vaporization temperature of the solid organic material so that there is thermal gradient across the thickness of the organic

material between the first and second regions, and metering at a controlled rate solid organic material from the first region into the second region (figure, abstract, paragraphs 3, 8, 9, 15 and 16).

JP '864 discloses a container into which powder material is continuously replenished from a hopper. A mass flow controller injects an argon gas into the container. The container is continuously heated. We assume the Examiner's position is that the hopper and the container are the first and second regions. Since the entire container is heated, there is no steep thermal gradient in the container and there is no way to provide such gradient between the hopper and the container. The container becomes pressurized in part by the argon and by the vaporized material which assumes a steady state vapor pressure. Throughout the entire container is material is heated and vaporized. Although one could consider the powdered material as being metered between the hopper and the container, there is no thin cross section of heated solid material because all of the material in the container is heated.

JP '864 relates to a chemical vapor deposition where the vaporized powdered material and argon carrier gas leave the container and are directed to a reactor chamber where a reaction occurs. The present invention is concerned with depositing a film on a substrate surface directly by condensing vaporized material. The differences between the JP '864 and claims 1 and 10 of the present invention are so significant that applicants fail to see how the structure shown by JP '864 would suggest the substantial reconstruction of its structure to provide the present invention. Clearly, there is not motivation in JP '864 for the present invention.

With respect to amended claim 2 of the present application, which refers to a permeable member located between the first and second regions. The permeable member in JP '864 is located at the exit portion of the second region. The permeable member in JP 864 is to prevent non-vaporized particles from being carried along in the argon gas that carries the vaporized material.

Claim 3 of the present application includes a deposition chamber and interrupts vaporization to reduce contamination of the deposition chamber. Since claim 3 depends upon claim 1, it should be allowed along with it.

Claim 5 of the present application requires the establishment of a constant plume shape. It is not clear that JP '864 requires a constant plume shape.

JP '864 is not interested in a plume shape but instead fills a reaction chamber with reaction gas.

Claim 7 of the present application does refer to a constant temperature of the second region but that is in the context of claim 1 which is significantly different than that is disclosed or suggested by JP '864.

Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsukasa (JP 05-117864) in view of Grant et al. (US Pat. No. 2003/0116091).

Grant (US 2003/0116091) discloses a cooling jacket 162 in thermal contact with a liquid conduit 116 on a first side of a thermal divide in the vaporization apparatus, isolated from a heated vaporization chamber on the second side of the divide. Liquid precursors are atomized as they leave the cooled liquid conduit 116 on the first side of the thermal divide and by this atomization, create a break in the thermal path through the liquid that allows the liquid to remain cool on the first side of the thermal divide while allowing rapid heating of the liquid droplets on the second side of the thermal divide.

Without introducing a thermal divide in both the vaporization apparatus and the vaporizable liquid, the apparatus of Grant would not function as described. Heat would simply flow from the heated region to the cooled region, resulting in inadequate heating in the vaporization region and excessive heating in the cooled region.

Applicants fail to see how Grant in any way can be combined in JP '864 to provide the invention defined in claims 1 and 10.

Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsukasa (JP 05-117864) in view of Peng (US Pat. No. 6,467,427).

Claim 9 depends upon claim 1 and should be allowed along with it. It is quite clear that Peng does not provide the metering of claim 1 since he uses gravity to dispense organic material. Further Peng doesn't have the steep gradient in the context of claim 1. Applicants fail to see how Peng can reasonably be combined with any of the cited references since his structure is so different from any of them or the vapor deposition apparatus needed to practice the method of clams 1 and 10.

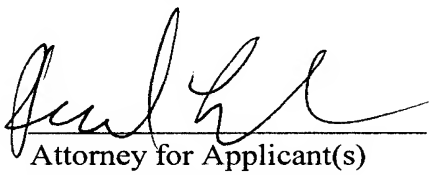
Claims 10-12, 14, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsukasa (JP 05-117864) in view of Dahmen et al. (US Pat. No. 6,660,328). Claim 16 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsukasa (JP 05-117864) in view of Dahmen et al. (US Pat. No. 6,660,328) and further in view of Grant et al. (US Pat. No. 2003/0116091).

JP '864 and Grant have been discussed above. It is true as the Examiner indicates that Dahmen et al. teaches the delivering of solid precursors into a single evaporator for vaporization. There is nothing in Dahmen et al. that discloses or suggests or provides any motivation for the two region system set forth in claims 1 and 10 and for the metering step set forth in element d) in each of these claims.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 22,363

Raymond L. Owens/djw
Rochester, NY 14650
Telephone: 585-477-4653
Facsimile: 585-477-4646

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.